Project Baseline Summary Report

Data Source: **EM CDB**
Report Number: **GEN-01b**
Operations/Field Office: **Richland**
Print Date: **3/9/2000**
Site Summary Level: **Hanford Site**
HQ ID: **0402**
Project **RL-TP02 / WESF Sub-Project**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

Purpose: The Waste Encapsulation Storage Facility (WESF) project mission is assuring the safe storage of approximately 147 million curies of encapsulated radioactive material. As part of accomplishing this mission, old systems and structures must be updated to be capable of functioning safely for the next 18 years and without a need for services previously supplied from B Plant. Primary upgrades are planned in the next few years in the areas of response to a potential capsule leak, pool cell monitoring capabilities, and capsule monitoring equipment. Safety analyses are also being upgraded with preparation of a new safety analysis report with accompanying operational safety requirements. These upgrades are necessary to maintain the capsules in a safe storage condition until transfer out for ultimate disposal. Final capsule removal is planned for 2017. After capsule removal the facility will be deactivated and turned over to the ER Project.

WESF has been in compliance with the interim status requirements since the Part A Permit was received. All documentation to support this will be submitted and should be approved by the end of FY99.

Scope: Specific project scope from the Hanford Site technical baseline is provided below in terms of the systems that the project has responsibility for.

WESF

· Maintain Safe & Compliant Materials (Cs/Sr Capsules) in WESF: Provide safe and compliant storage of approximately 1936 cesium and strontium capsules in the WESF pool cell area. Complete surveillance and maintenance activities on those systems required to maintain safe storage of the capsules. Update and implement operational and safety documentation to reflect current facility operations and conditions.

Includes site assessment funding to provide utilities, waste disposal, patrol, fleet maintenance, etc., design basis reconstitution, ultrasonic testing of capsules and receive 300 Area capsules for storage.

· Maintain Safe & Compliant Waste Encapsulation and Storage Facility in Central Plateau Areas: Provide a safe and compliant facility for the WESF capsules. Complete surveillance and maintenance activities on those systems required to maintain a safe facility. Day-to-day work, including preventative and corrective maintenance, that is required to maintain the facility.

· Remove Material from WESF: In 2013, WESF will begin transferring cesium and strontium capsules to the TWRS for incorporation into the Phase II high-level waste (HLW) vitrification program, followed by final disposition. The last caspules are expected to be removed from WESF in 2017.

· Transition Waste Encapsulation and Storage Facility: After the transfer of all cesium and strontium capsules out of WESF in 2017, the WESF facility will be deactivated and turned over to the ER project.

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Project Description Narratives

Technical Approach: The end point targets in the Hanford Strategic Plan addressed by this project include:

· Transition high cost surplus facilities in the Central Plateau Area to a low cost, stable, deactivated condition.

· Continue to provide safe storage for Cs/Sr capsules in the Waste Encapsulation and Storage Facility (WESF) through 2017.

The technical approach and technology initiatives for the Project to accomplish the Hanford Strategic Plan end point targets are identified below.

Project Status in FY 2006:

WESF

· Capsule storage will continue until FY2013 when WESF will begin transfer of capsules for final disposition.

Post-2006 Project Scope:

WESF

· Capsule storage will continue until FY2013 when WESF will begin transfer of capsules for final disposition.

Project End State

The Hanford Strategic Plan end point targets achieved at completion of the project include:

Hanford Mission End Point Targets Achieved

· Continue to provide safe storage for Cs/Sr capsules in the Waste Encapsulation and Storage Facility (WESF) through 2017.

Specific work activities to close the facilities under this Project to be performed by others at the end of this Project's mission are identified below.

WESF
Work associated with facility performed by Decontamination & Decommissioning:
Decontaminate and Decommission (D&D) Waste Encapsulation and Storage Facility

Cost Baseline Comments:

The cost estimate is based upon Activity Based Cost (ABC) estimating and engineering estimates prepared in 1996. An update of the ABC estimate and completion of an Independent Validation is planned by July 31, 1999. No contingency is included in the cost baseline.

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Project Description Narratives

Safety & Health Hazards:

The WESF facility mission is to assure the safe storage of approximately 150 million curies of encapsulated radioactive material. The inventory of radionuclides is one of the highest on the Hanford site. Failure to maintain the cooling, ventilation and other safety systems would result in a major release of contamination to site workers, the environment and to the public.

Safety & Health Work Performance:

The resources necessary to accomplish the work safely are identified by the Authorization Basis, the site Health and Safety Program requirements and through the resources allocated to the site`s integrated safety management system in the following functional catagories: radiological safety, emergency preparedness, fire protection, industrial hygiene, management oversight, nuclear safety, radiation protection, and transportation safety. Since, the activities being performed are currently in operation, no restart reviews are currently anticipated. No appreciable change in S & H resource requirements is anticipated until the upgrades have been completed and mortgage reduction begins.

PBS Comments:

Operation of the WESF project is a key activity at Hanford. The quantity and activity level of the strontium and cesium stored at WESF comprises one of the three highest level accumulations of radioactive material at Hanford. Maintaining these capsules in a safe and sound condition for 20 more years will be a challenge. Failure to do so will result in some very severe safety, environmental and ultimately costly consequences. Activities underway at WESF today will help increase the margin of safety in accomplishing that longer term goal.

Baseline Validation Narrative:

An Activity Based Cost Estimate (ABC) was prepared for the WESF faciilty and an independent critical analysis was performed on the baseline (August 1996). An update of the ABC estimate and completion of an Independent Validation is planned by July 31, 1999.

General PBS Information

Project Validated? Yes **Date Validated:** 8/1/1996

Has Headquarters reviewed and approved project? Yes

Date Project was Added: 12/1/1997

Baseline Submission Date:

FEDPLAN Project? Yes

Drivers:

CERCLA	RCRA	DNFSB	AEA	UMTRCA	State	DOE Orders	Other
	Y	N			Y	Y	Y

Project Identification Information

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Project **RL-TP02 / WESF Sub-Project**

General PBS Information

DOE Project Manager: Larry D. Romine

DOE Project Manager Phone Number: 509-376-4747

DOE Project Manager Fax Number: 509-376-0695

DOE Project Manager e-mail address: larry_d_romine@rl.gov

Is this a High Visibility Project (Y/N):

Planning Section

Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006
PBS Baseline (current year dollars)	133,825	155,369	289,194	13,574	13,115	14,318	12,763	11,007	15,053	13,895	15,285	14,527	12,606	11,220	12,340
PBS Baseline (constant 1999 dollars)	126,400	113,637	240,037	13,574	13,115	14,318	12,763	11,007	14,743	13,316	14,333	13,329	11,317	9,856	10,607
PBS EM Baseline (current year dollars)	133,825	155,369	289,194	13,574	13,115	14,318	12,763	11,007	15,053	13,895	15,285	14,527	12,606	11,220	12,340
PBS EM Baseline (constant 1999 dollars)	126,400	113,637	240,037	13,574	13,115	14,318	12,763	11,007	14,743	13,316	14,333	13,329	11,317	9,856	10,607

	2007	2008	2009	2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
PBS Baseline (current year dollars)	9,502	9,813	10,029	10,250	62,221	53,554	0	0	0	0	0	0				
PBS Baseline (constant 1999 dollars)	7,992	8,075	8,076	8,076	45,947	35,471	0	0	0	0	0	0				
PBS EM Baseline (current year dollars)	9,502	9,813	10,029	10,250	62,221	53,554	0	0	0	0	0	0				

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Project **RL-TP02 / WESF Sub-Project**

	2007	2008	2009	2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
PBS EM Baseline (constant 1999 dollars)	7,992	8,075	8,076	8,076	45,947	35,471	0	0	0	0	0	0				

Baseline Escalation Rates

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
0.00%	0.00%	0.00%	2.10%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%

2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%				

Project Reconciliation

Project Completion Date Changes:

Previously Projected End Date of Project: 9/30/2019

Current Projected End Date of Project: 9/30/2019

Explanation of Project Completion Date Difference (if applicable):

Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars): 209,904 **Actual 1997 Cost:** 13,115 **Actual 1998 Cost:** 12,763

Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars): 184,026 **Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):** 4,969

Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars): 188,995

Project Cost Changes

	Cost Adjustments	Reconciliation Narratives
Cost Change Due to Scope Deletions (-):		

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Project **RL-TP02 / WESF Sub-Project**

Project Reconciliation

Cost Reductions Due to Efficiencies (-):	
Cost Associated with New Scope (+):	
Cost Growth Associated with Scope Previously Reported (+):	
Cost Reductions Due to Science & Technology Efficiencies (-):	
Subtotal:	188,995
Additional Amount to Reconcile (+):	23,150
Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	**212,145**

Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
COMPLETE WESF UPGRADES	TRP-09-701	12/31/2009	12/31/2009	12/31/2009			Y				
RECEIVE 300 AREA CS/SR IN SUPPORT OF TPA-M-92-04 AS REQUIRED	TRP-99-708	12/31/1998	12/31/1998			10/21/1998					
SUBMIT THE WESF SAFETY ANALYSIS REPORT (SAR) TO RL FOR REVIEW	TRP-97-605	9/29/2000	9/29/2000								
COMPLETE HOT CELL DEACTIVATION	TRP-98-709	3/31/1999	3/31/1999		5/31/1999						
COMPLETE STANDALONE/SHOWCASE UPGRADES	TRP-99-711	9/30/2005	9/30/2005								
Begin WESF Project	PBS-97-017		2/28/1997								
PBS Mission Complete	PBS-MC-017		9/30/2019								
PBS Project End	PBS-PE-017		9/30/2019								

Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critial Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
COMPLETE WESF UPGRADES	TRP-09-701										Complete construction and/or facility

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Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critial Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
											modifications/upgrades necessary for
RECEIVE 300 AREA CS/SR IN SUPPORT OF TPA-M-92-04 AS REQUIRED	TRP-99-708										TPA milestone M-92-04 requires that cesium and strontium be removed from the 300 Area by December 1998. Plans to dispose of this material are under development and may involve WESF.
SUBMIT THE WESF SAFETY ANALYSIS REPORT (SAR) TO RL FOR REVIEW	TRP-97-605										The WESF SAR will be upgraded to comply with current RL and BWHC requirements.
COMPLETE HOT CELL DEACTIVATION	TRP-98-709										WESF hot cells A-E are being deactivated to allow facility resources to be focused on capsule storage. This will include removal of combustible waste and isolation of water.
COMPLETE STANDALONE/SHOWCASE UPGRADES	TRP-99-711										Complete construction and/or facility modifications/upgrades necessary to ensure the safe storage of WESF capsules and upgrade of WESF to a showcase for radioacative material storage within the DOE complex.
Begin WESF Project	PBS-97-017			Y							Administrative input to document the start of this PBS.
PBS Mission Complete	PBS-MC-017					Y					Administrative input to document the mission completion of this PBS.
PBS Project End	PBS-PE-017				Y						Administrative input to document the project end of this PBS.

Performance Measure Metrics

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Project **RL-TP02 / WESF Sub-Project**

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planne 200
Fac.														
Deact. During Per.	NF	0.00	15.00	15.00										

Category/Subcategory	Units	Planned 2004	Planned 2005	Planned 2006	Planned 2007	Planned 2008	Planned 2009	Planned 2010	Planned 2011 - 2015	Planned 2016 - 2020	Planned 2021 - 2025	Planned 2026 - 2030	Planned 2031 - 2035
Fac.													
Deact. During Per.	NF										15.00		

Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total
Fac.										
Deact. During Per.	NF								1.00	16.00

Technology Needs

Site Need Code: RL-DD01

Site Need Name: Cesium Capsule Leak Detection System for WESF

Focus Area Work Package ID: DD-07

Focus Area Work Package: Hot Cell Facilities and Laboratory Equipment D&D

Focus Area: DDFA

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both):

Technologies	Cost Savings (in thousands of dollars)	Range of Estimate
Measurement of Radionuclides Using Ion Chromatography and Flow-Cell Scintillation Counting		
Remote Underwater Characterization System (RUCS)		

Technology Needs

Site Need Code: RL-DD041

Site Need Name: Capsule Integrity Assessment Method for WESF

Focus Area Work Package ID: DD-07 **Focus Area Work Package:** Hot Cell Facilities and Laboratory Equipment D&D

Focus Area: DDFA **Agree with Technology Link:** Y

Benefits (Cost, Risk Reduction, Both):

Technologies	Cost Savings (in thousands of dollars)	Range of Estimate

Site Need Code: RL-DD042

Site Need Name: Hot Cell Window Life Extension for WESF

Focus Area Work Package ID: DD-07 **Focus Area Work Package:** Hot Cell Facilities and Laboratory Equipment D&D

Focus Area: DDFA **Agree with Technology Link:** Y

Benefits (Cost, Risk Reduction, Both):

Technologies	Cost Savings (in thousands of dollars)	Range of Estimate

Site Need Code: RL-DD043

Site Need Name: Crane System Upgrades for Hot Cell Canyon and Cesium Capsule Pool in WESF

Focus Area Work Package ID: DD-07 **Focus Area Work Package:** Hot Cell Facilities and Laboratory Equipment D&D

Focus Area: DDFA **Agree with Technology Link:** Y

Benefits (Cost, Risk Reduction, Both):

Technologies	Cost Savings (in thousands of dollars)	Range of Estimate
Interactive, Computer-Enhanced, Remote-Viewing System		

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Technology Needs

Operator Interface for Robotic Applications

Swing-Reduced Crane Control

Site Need Code: RL-DD044

Site Need Name: Cesium and Strontium Inventory Removal From K3 Duct at WESF

Focus Area Work Package ID: DD-07 **Focus Area Work Package:** Hot Cell Facilities and Laboratory Equipment D&D

Focus Area: DDFA **Agree with Technology Link:** Y

Benefits (Cost, Risk Reduction, Both):

Technologies	Cost Savings (in thousands of dollars)	Range of Estimate

Site Need Code: RL-DD045

Site Need Name: Fixatives for K3 Duct at WESF

Focus Area Work Package ID: Pu-02-Stabilization **Focus Area Work Package:** Miscellanous Pu Residue Stabilization and Disposition

Focus Area: PLUTOFA **Agree with Technology Link:** N

Benefits (Cost, Risk Reduction, Both): Cost

Technologies	Cost Savings (in thousands of dollars)	Range of Estimate

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Technology Needs

Site Need Code: RL-DD022-S
Site Need Name: Photon Assisted Decontamination Chemistry
Focus Area Work Package ID: Pu-02-Stabilization
Focus Area Work Package: Miscellanous Pu Residue Stabilization and Disposition
Focus Area: PLUTOFA
Agree with Technology Link: N
Benefits (Cost, Risk Reduction, Both): Cost

Technologies	Cost Savings (in thousands of dollars)	Range of Estimate